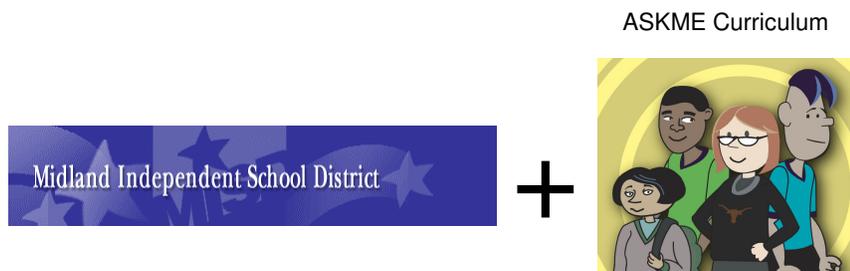


## The Partnership between the University of Texas and Midland ISD



## Problem with Current Mathematics Textbooks

- Not written for Texas
- Mile Long and Only an Inch Deep
- Focus is on getting an Answer not the Thinking Process
- Vertical Alignment not there for Texas
- No Guidance on Scope and Sequence
- No Review of Previous TAKS Concepts



**askme**  
courses™

Welcome to ASKME!

Click the Unit 1 link in the left navigation bar to start the course.

**Strengths:**

- Written for Texas and Aligned throughout each Subject – Algebra, Geometry, an Algebra II
- Sensible Scope and Sequence that does not teach Concepts in Isolation
- Rigorous
- Visual and Interactive
- Online Tutorials for Students and Teachers

**Weaknesses:**

- In a self-paced setting, at-risk students will struggle without a tremendous amount of guidance from the teacher

TABLE OF CONTENTS	Unit 1: The Speeding Problem	Unit Outline
<ul style="list-style-type: none"> <li>Course Home</li> <li>Unit 1: The Speeding Problem</li> <li>Unit 2: The Trash Problem</li> <li>Unit 3: The Animal Shelter Problem</li> <li>Unit 4: The Health Problem</li> <li>Unit 5: The Community Garden Problem</li> <li>Unit 6: The Community Garden Problem (Continued)</li> <li>Unit 7: Non-Linear Functions Checklist</li> <li>TEKS and TAKS</li> </ul>	<p>Introduction</p>  <p>The Speeding Problem</p>	<p>Chapter 1.1: Introduction to Functions</p> <ul style="list-style-type: none"> <li>Activity 1: Describing Fines with Algebra</li> <li>Activity 2: Using Independent and Dependent Variables to Make Predictions</li> <li>Activity 3: Domain and Range</li> </ul> <p style="text-align: center;">Graded Assignment 1</p> <p>Chapter 1.2: Using Tables and Graphs</p> <ul style="list-style-type: none"> <li>Activity 4: Using Functions to Make Predictions</li> <li>Activity 5: Graphing Function Data</li> </ul> <p style="text-align: center;">Graded Assignment 2</p> <p>Chapter 1.3: More on Using Tables and Graphs</p> <ul style="list-style-type: none"> <li>Activity 6: Graphs of Functions and the 2-Second Rule</li> <li>Activity 7: Function Graphs and Speeding Drivers</li> <li>Activity 8: Functions and Insurance Rates</li> </ul> <p style="text-align: center;">Graded Assignment 3</p> <p>Chapter 1.4: Multiple Representations of Functions</p> <ul style="list-style-type: none"> <li>Activity 9: Using Tables to Think about Speeding Fines</li> <li>Activity 10: Analyzing Speeding Fine Structures in Other Communities</li> <li>Activity 11: Interpreting Your Graphs and Your Data</li> </ul> <p style="text-align: center;">Graded Assignment 4</p>

**Introduction**



Each question below describes a problem situation. In each situation, there is a pair of quantities that may be related by a function.

Use the given viewpoint of each pair to determine if the quantities are related by a function. As you answer these questions, identify the dependent and independent variables you will choose to use in The Speeding Problem.

**TEKS:** 111.32(a)(3) 111.32(b)(1)(A) 111.32(b)(1)(B)

**TAKS objectives:** A(b)(1)(A) A(b)(1)(B) A(b)(1)(C)

**Directions**

1. **Complete the Review Exercises.** Use these practice items to prepare for the TAKS test.
2. **Watch each tutorial.** Click the image in the tutorial box to learn new material.
3. **Answer each Guided Practice Question.**
  - Click Show Hint below each question for help.
  - Click Save this item to save each of your answers.
  - Click Show Explanation to check your answer.
  - Revise your answer based on what you learned in the explanation.
4. **Work Additional Problems.** Use these problems for additional practice.

**Function Machine Tutorial**



What is a **function** rule? How do you apply function rules to real-world problems? How do you find the **dependent** and **independent variables**?

The Function Machine provides definitions and examples to help you answer these questions. Click the image to start the machine.

**Guided Practice Question 1**

The amount of money earned  $m$  and the number of hours worked  $h$ . If Ed worked 25 hours, how much will he earn?

- In this problem situation, finding the value of  depends on the value of .

[Show Hint](#)  
[Show Explanation](#)

- What is the **independent variable**?   
What is the **dependent variable**?

[Show Hint](#)  
[Show Explanation](#)

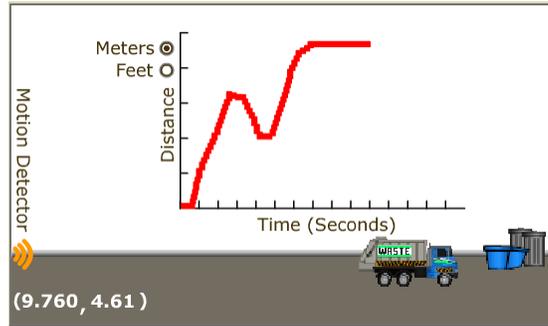
- In this problem situation, as the values of the independent variable increase, the values of the dependent variable (choose one from below):  
 increase  decrease  remain constant

[Show Hint](#)  
[Show Explanation](#)

- Is this relationship a **function**?  
 yes  no

[Show Hint](#)

ASKME INTERACTIVE TUTORIAL  
EXCELLENT INSTRUCTIONAL TOOL!



Algebra I Menu taken from the Midland ISD Curriculum

<b>Menu</b>				
<b>Units</b>  <b>TAKS</b>  <b>Teacher Tools</b>	<b>Unit 1</b>	<b>Simplifying Expressions</b>	<b>Describing Lines Using Algebra</b>	<b>Handout</b>  <b>Lesson</b>  <b>Worksheet</b>
	<b>Unit 2</b>	<b>Solving Equations</b>	<b>Independent &amp; Dependent I</b>	
	<b>Unit 3</b>	<b>Understanding Functions</b>	<b>Independent &amp; Dependent II</b>	
	<b>Unit 4</b>	<b>Scatterplots</b>	<b>Using The Table (Calculator)</b>	
	<b>Unit 5</b>	<b>Analyzing &amp; Interpreting Data</b>	<b>Domain &amp; Range (Algebraic Rule)</b>	
		<b>Unit 1 Test</b>	<b>Domain &amp; Range (Graph)</b>	
			<b>Reasonable Domain &amp; Range</b>	
			<b>Is It A Function?</b>	
			<b>Test</b>	

*The Speeding Problem*

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Algebra I September Calendar taken from the Midland ISD Curriculum

<b>September</b>						
<i>Sun</i>	<i>Mon</i>	<i>Tue</i>	<i>Wed</i>	<i>Thu</i>	<i>Fri</i>	<i>Sat</i>
					1 Multi-Step/ Quiz	2
3	4 Holiday	5 Variables on Both Sides	6 Both Sides Continued...	7 Solve for Indicated Variable	8 Indicated Variable cont...	9
10	11 LAB	12 Review	13 Solving Equations Test	14 Describing Fines Using Algebra	15 Independent/ Dependent Variables I	16
17	18 TAKS Focus Day (Obj. 6)	19 Ind/ Dep 2	20 Using the table in the calculator	21 Domain & Range from Algebraic Rule	22 (End of 1 <sup>st</sup> 6 Weeks) Domain & Range from the Graph	23
24	25 LAB	26 Reasonable Domain & Range	27 Is it a function?	28 Review	29 Test	30

2006

POWERPOINT SLIDE TAKEN FROM THE MIDLAND ISD CREATED CURRICULUM IN CONJUNCTION WITH ASKME AND GIZMOS

## Solving Systems With Graphs

The screenshots illustrate the following steps:

- Graphing the System:** Two linear equations are graphed on a coordinate plane. The equations are  $y = 2x + 1$  and  $y = -x + 4$ . The lines intersect at the point  $(1, 3)$ .
- Identifying the Solution:** The point of intersection is identified as the solution to the system of equations.
- Verification:** The solution  $(1, 3)$  is substituted into both original equations to verify it is a solution to both.
- Final Answer:** The solution to the system is  $(1, 3)$ .

POWERPOINT SLIDE TAKEN FROM THE MIDLAND ISD CREATED CURRICULUM IN CONJUNCTION WITH ASKME

## Kids Marathon

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- From investigating possible activities, students found that there are children's marathons in Indianapolis, Maryland, and Seattle
- Your committee wants to use \$1000 of the available funds to promote children's fitness by sponsoring a kids marathon. Each child who participates will receive a t-shirt. To make t-shirts will cost \$50 for a set-up fee plus \$5 for each shirt. The other expenses include \$53 for ribbons, \$59 for advertisement brochures and \$44 for equipment. The entry fee is \$3 per child.

POWERPOINT SLIDE TAKEN FROM THE MIDLAND ISD CREATED CURRICULUM IN CONJUNCTION WITH ASKME

## Kids Marathon

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Write two linear functions in terms of the number of children who participate. One should describe the cost of the event and the other should describe the total income, including the initial \$1000.

Determine the number of participants necessary to break even.

## Benefits MISD Has Experienced Since Creating and Implementing a District Wide Curriculum in Conjunction With AskMe

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- Enhanced Collaboration among Teachers and Schools within the District
- Raised Expectations and Rigor in the Classroom
- Ensured Coverage of the TEKS to a High Level
- Promotes the Thinking Process - Not just getting an Answer
- Vertical Alignment from 9<sup>th</sup> to 11<sup>th</sup> Grade
- Consistent use of Technology
- Changed Teachers' View of how Mathematics should be Taught
- Tutorials provide Continuous Staff Development for Teachers and Support for Students at Home
- Corrections and changes can be made to the program immediately or periodically through an online process
- Improved TAKS results